the HOUSE FLY

how
to control
it

Leaflet No. 390
U. S. DEPARTMENT OF AGRICULTURE

THE HOUSE FLY

how to control it

The house fly [1] is a danger to the health of man and animals principally because it carries and spreads disease germs that may be in the materials it breeds in, feeds on, or walks on.

This fly feeds and breeds most extensively in manure, garbage, and fermenting crop wastes. If disease germs are in these materials, or in others that they frequent, the flies get them on their hairy legs and feet and in their digestive tracts. If the flies have access to man's food, they contaminate it by walking over it.

By contaminating food and water and by coming in direct contact with the hands and mouth, the flies spread typhoid, dysentery, and diarrhea. They have a part in spreading cholera, yaws, trachoma, and many other diseases.

To control the house fly in and around the home and on the farm, do these things:

Eliminate breeding places of flies.

Follow sanitary practices constantly. Keep garbage and other refuse under cover; dispose of garbage frequently. On the farm, dispose of manure properly.

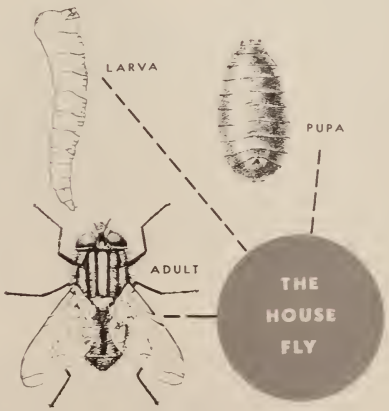
Screen windows and doors of the home and of dairy barns and milk rooms.

Kill flies. Use space and surface sprays in and around the home. Use space sprays, surface sprays, and insecticide baits in and around farm buildings. (Electric grids and traps are effective fly-killing devices in some circumstances.)

Some house flies have developed a resistance to certain insecticides. Although flies can usually be controlled with malathion, crotoxyphos, or ronnel, as recommended, resistance to these insecticides may occur in some areas.

SANITATION

Despite advances in the development of insecticides, sanitation continues to be the mainstay of house fly control in and around the home and on the farm.



[1] *Musca domestica L.*

Flies breed in places where garbage or filth accumulates. Find and eliminate such places. Clean up. Bury or otherwise dispose of dog, cat, and chicken excreta around the yard.

Make sure you have tight-fitting lids on garbage cans.

Do not let garbage accumulate in the open. Do not let it stand until it ferments; insist on frequent pickups.

SCREENS

Well-fitting screens on windows and doors are essential for keeping flies out of homes, dairy barns, and milk rooms.

In a humid climate, use screens of copper, aluminum, bronze, plastic, or one of the rust-resisting alloys.

Screens with 14 meshes to the inch will keep out house flies, but 16-mesh screens will keep out some other insects also.

INSECTICIDES

To kill flies quickly inside the home, use an insecticide in a space spray (or in an aerosol). *Outside the house,* apply a surface, or residual, spray to garbage cans, screens, porches, door and window frames, edges of arches, and other places where flies gather, or use an insecticide bait. Do not contaminate food, water, or utensils.

To kill flies in and around farm buildings, apply a surface spray to the inside and outside of stables, dairy barns, hog houses, poultry houses, and other buildings in which livestock are kept. A space spray may also be used. (See precautions on page 8.) Do not contaminate feed, water, milk, or milking utensils.

Space Sprays

Several kinds of ready-to-use space sprays for killing flies inside the home and barn may be purchased. Buy the best-grade sprays from a reputable dealer.

Look for space sprays of the following types:

- Those that contain 0.1- to 0.25-percent pyrethrins plus 1 to 2 percent of a synergist. (The synergist increases the effectiveness of the pyrethrins.) Do not use pyrethrins in dairy barns or poultry houses. (See precautions for barn use on page 8.)
- Aerosol bombs provided the labels say that the contents are for use against flying insects.
- Space sprays and aerosols that contain 2-percent malathion or 0.5-percent ronnel. Do not use the sprays in barns.

To kill flies in a room, release a mist from a hand or power sprayer or from an aerosol bomb for a few seconds, and keep the room closed for an hour.

Surface Sprays

Surface sprays leave a residue that may be effective for several weeks.

Malathion, crotoxyphos, dime-

thoate, and ronnel are recommended for use as surface sprays in barns, but be sure to observe the precautions for barn sprays on page 8. Malathion and ronnel may be used as surface sprays in homes. Apply them around windows and to other areas frequented by flies. Apply insecticides at the rate of 1 or 2 gallons per 1,000 square feet. Moisten the surface without causing runoff.

In treating farm buildings, use a power, compressed-air, or knapsack sprayer.

Crotoxyphos

Apply as a 1-percent emulsion spray. Mix 10 tablespoons of 25-percent emulsifiable concentrate in 1 gallon of water to make the proper concentration of insecticide.[2]

Do not use crotoxyphos in poultry houses.

Dimethoate

Apply as a 1-percent emulsion spray. Mix 10 tablespoons of 25-percent emulsifiable concentrate in 1 gallon of water to make the proper concentration of insecticide. Remove animals from buildings before using dimethoate. Do not treat milk processing rooms.

Malathion and Ronnel

Apply as a 2½-percent malathion or a 1-percent ronnel spray. Mix 25 tablespoons of 25-percent malathion or 10 tablespoons of 25-percent ronnel emulsifiable concentrate in 1 gallon of water. Do not use ronnel in dairy barns or poultry houses.

[2] If the product you buy contains a lower or higher percentage of the insecticide, use proportionately more or less of it.

INSECTICIDE BAITS

Insecticide baits control house flies in some places where sprays fail, particularly in unscreened dairy barns and in poultry houses. If properly applied, they can be used in most farm buildings without harming domestic animals. The baits described here are not approved for use in the home, milk rooms, and restaurants.

The effective insecticides are malthion, ronnel, dichlorvos, and naled. Ready-to-use dry baits containing most of these insecticides are on the market. Trichlorfon is available as a ready-to-use bait.

Making A Bait

Try to buy a ready-to-use bait. If it is not available, buy an emulsifiable concentrate of one of the approved insecticides and make a bait.

Liquid Bait

Make a liquid bait by mixing an arrestant—molasses, sirup, or sugar—and one of the insecticides with water. Mix 12 ounces of an arrestant in 1 gallon of water. The amounts of insecticide to add to the water-arrestant solution are given in this tabulation:

Insecticide	Emulsifiable concentrate (percent)	Tablespoons
Malathion	25	12.5
Ronnel	25	20
Dichlorvos	25	2
Naled	58	3

Dry Bait

A dry bait can be made by mixing a wettable powder of an insecticide in granulated sugar. Add about ¼ teaspoon of lampblack per pound of sugar. Stir with a paddle until all the grains of sugar are coated with powder and colored a dirty gray. This prevents mistaking the bait for ordinary sugar. The amounts of wettable powder to mix with 1 pound of sugar are given in the following guide.

GUIDE FOR MIXING A DRY BAIT

Insecticide	Wettable Powder (percent)	Tablespoons
Malathion	25	4
Ronnel	25	1

Cornmeal Bait

A cornmeal bait is recommended for use on moist surfaces, where a dry sugar bait would dissolve.

While stirring 1 pound of coarsely ground cornmeal, slowly add the following:

- 1 tablespoon of peanut oil.
- Wettable powder of malathion, or ronnel. (For proper amount, see "Guide for Mixing A Dry Bait.")
- 2 ounces of powdered sugar.
- ¼ teaspoon of lampblack.

Stir with a paddle until all the meal particles are coated with the sugar and the wettable powder. Stirring for 5 minutes insures proper mixing of quantities of 1 to 5 pounds. Mixing of larger quantities by hand is not recommended.

Applying the Bait

Frequency

When flies are numerous, spread bait daily. When fewer flies are seen spread bait once every 3 or 4 days. If flies again become numerous, apply more frequently.

How and Where

Place baits where you find flies gathering. The arrestant will make the flies stop and feed; it is not a true chemical attractant.

If you buy a *ready-to-use dry bait*, apply it according to the directions on the container .

Apply *homemade liquid bait* with an ordinary sprinkling can. Plug about half the holes so that the bait will spread thinly in strips 4 to 6 inches wide on floors. If the floors are covered with dirt or litter, sprinkle the bait on sheets of tin, wood, or paper.

Apply at the rate of 1 gallon to 1,000 square feet.

Apply *homemade, dry sugar bait* with a shaker-top can. Sprinkle thinly in narrow strips on floors, walkways, window sills, and other places where flies

gather, but not where it will contaminate animal feed, water, human food, or utensils. Use it only on dry, firm surfaces.

Apply at the rate of 3 tablespoons per 1,000 square feet—or about ¼ pound for an average-size barn (one with 2,000 to 4,000 square feet of floor).

Apply *cornmeal bait* at the rate of 2 to 4 ounces per 1,000 square feet in barns or sheds. A higher rate—4 to 8 ounces per 1,000 square feet—may be necessary in open places; the rate depends on the condition of the surface and on the abundance of flies.

PAINT-ON BAIT

Neither a dry bait nor a liquid bait gives good control of flies in animal pens in which the ground is trampled, littered, or muddy.

A paint-on bait usually gives good control in these places. It is applied with a paintbrush to suitable surfaces nearby, such as posts, railings, or board fences. Corn sirup, blackstrap molasses, or a thick water-and-sugar slurry containing 1.25 percent of malathion, 2.0 percent of ronnel, 0.1 percent of dichlorvos or 0.5 percent naled makes a satisfactory paint-on bait. The amounts of insecticide to mix in 1 gallon of arrestant are listed below.

Insecticide	Emulsifiable concentrate (percent)	Tablespoons
Malathion	25	12.5
Ronnel	25	20
Dichlorvos	25	2
Naled	58	3

Apply the bait whenever flies become numerous. Paint or daub it on. One application is effective about a week.

If you apply bait to a fence around a pen, apply it only to the outside.

A fence around an average-size calf pen or pigpen can be adequately treated with 2 quarts of bait.

MANURE DISPOSAL

House fly control on the farm requires proper management of livestock, and poultry wastes.

To discourage fly reproduction, manure should be removed daily from stables, dairy barns, pig-feeding lots, and poultry houses, and spread thinly on fields.

If it is necessary to store the manure for short periods, screened storage pits or bins should be used. Composting is an alternative holding technique. However, if the manure is composted, it must be turned periodically to stop maggot growth.

Slatted floors are placed over collection pits in animal shelters

---

Mention of a proprietary product in this publication does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture and does not imply its approval by the Department to the exclusion of other products that may also be suitable.

The insecticides mentioned in the text may not be commercially available by their common names, but may be purchased under the following comercial designations:

Common Name	Other Designations
Crotoxyphos	Ciodrin, Shell SD-4294
Malathion	Cythion, Carbophos
Dimethoate	Cygon, Rogor
Ronnel	Korlan, Trolene, Dow ET–14
Trichlorfon	Dipterex, Dylox, Neguvon
Dichlorvos	DDVP, Vapona, Nuvan
Naled	Dibrom
Pyrethrins	Pyrocide

to reduce fly reproduction. Some large livestock operations flush animal wastes from buildings with water and spread the slurry on fields with a tank-type spreader or an irrigation system.

If a waste disposal lagoon is used, its banks should be sloped to prevent propagation of flies and accumulation of wastes.

GRIDS AND TRAPS

Electric grids mounted in the open, or attached to window and door screens, kill many flies, but do not control satisfactorily.

An electric grid consists of parallel wires, about one-quarter inch apart, connected to a high-voltage, low-amperage circuit. Insects that try to pass between any two wires are electrocuted.

Flies can be attracted to the grid with ultraviolet fluorescent lamps (type BL or BLB) or with bait. A good bait consists of the following: 8 ounces of cornmeal, 5 ounces of molasses, 1 cup of water, and a ½ cake of yeast.

Several kinds of electric grid traps are used in places where flies gather. Among them are traps equipped with ultraviolet lamps, homemade or commercial screen traps, and jar traps.

GARBAGE DUMPS AND PACKING PLANTS

House flies that breed in municipal garbage dumps can be controlled by applying one of the insecticide baits discussed in this leaflet. Apply either a liquid or a dry bait. Apply liquid bait at the rate of 5 to 10 gallons per acre. Apply dry bait at the rate of 5 to 10 pounds per acre.

Flies that breed in wastes around vegetable- and fruit-packing plants can be controlled by spreading baits, spraying waste material with insecticide, applying surface sprays outside the plant where flies gather, and applying surface sprays and space sprays inside the plant before the packing season begins. Space sprays may be used during the packing season, but only during hours when the plant is not in operation. Spraying waste ma-

terial with insecticide may be hazardous to birds and other wildlife.

PRECAUTIONS

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers—out of the reach of children and pets—and away from foodstuff.

Apply pesticides selectively and carefully. Do not apply a pesticide when there is danger of drift to other areas. Avoid prolonged inhalation of a pesticide spray or dust.

After handling a pesticide, do not eat, drink, or smoke until you have washed. In case a pesticide is swallowed or gets in the eyes, follow first aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Dispose of empty pesticide containers by wrapping them in several layers of newspapers and placing them in your trash can.

Barn sprays.—Do not use pyrethrins or ronnel in poultry houses or dairy barns. Remove animals from dairy barns before using sprays other than crotoxyphos. Remove poultry from houses before spraying with dimethoate.

Home sprays.—Use only products specifically labeled for use in homes.

NOTE: Registrations of pesticides are under constant review by the U.S. Environmental Protection Agency. Use only pesticides that bear a Federal registration number and carry directions for home and garden use.

Prepared by
Southern Region
Agricultural Research Service

Washington, D.C. Revised November 1975

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 25 cents
Cat. No. A1.35:390/10

☆ U.S. GOVERNMENT PRINTING OFFICE 1975 O—588-188